



We Claim:

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1. A multi-function hub for use in an assist system/comprising: a physical interface for providing mechanical support within an assist system; programmable logic for implementing program controlled functions; and an input/output ("I/O") interface for communication to a plurality of computational nodes.

- 2. The hub of claim 1 wherein the programmable logic implements input/output communication functions.
- 3. The hub of claim 1 wherein the programmable logic implements motion control algorithms.
- 4. The hub of claim 1 wherein the I/Q interface provides communication to a plurality of sensors.
- 5. The hub of claim 1 wherein the I/O interface provides input from an intent sensor.
- 20 6. The hub of claim 1 wherein the I/O interface provides control outputs to actuators.
 - 7. The hub of claim 1 further comprising an electrical interface to provide electrical power to a tooling.
 - 8. The hub of claim 1/further comprising an pneumatic interface to provide pneumatic power to a tooling.
 - 9. The hub of claim 1 further comprising:

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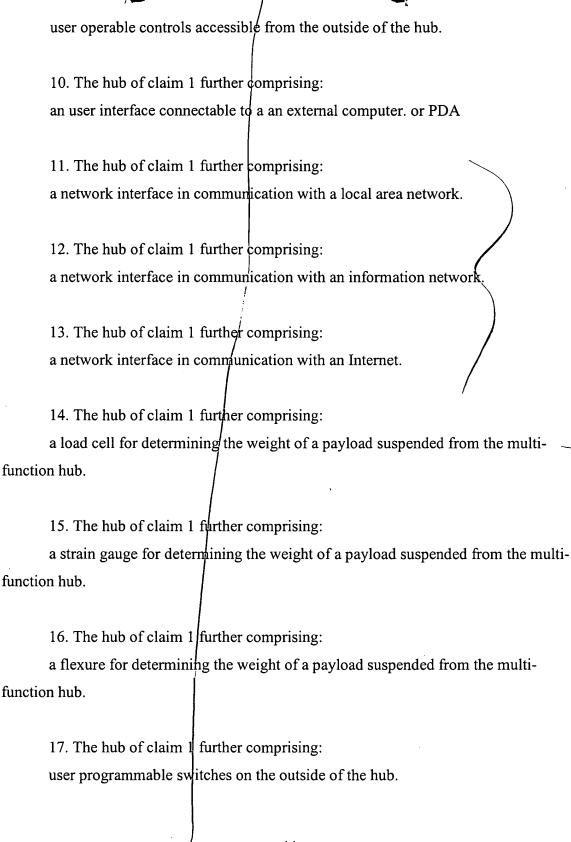
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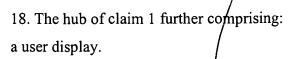


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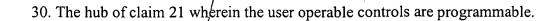
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- 19. The hub of claim 1 further comprising: a personal digital assistant.
- 20. The hub of claim 1 wherein the physical interface comprises a swivel.
- 21. The hub of claim 1 further comprising an intent sensor in communication with the hub to indicate a user's intent to move the payload.
 - 22. The hub of claim 21 wherein the intent sensor is mechanically fastened to the hub.
 - 23. The hub of claim 21 wherein the intent sensor comprises an inline handle.
 - 24. The hub of claim 23 wherein the inline handle comprises a grip.
 - 25. The hub of claim 23 wherein the inline sensor descends from the hub.
 - 26. The hub of claim 21 wherein the intent sensor comprises a slidable collar.
 - 27. The hub of claim 21 wherein the intent sensor comprises a spring return.
- 25 28. The hub of claim 21 wherein the intent sensor comprises a hall-effect proportional control.
 - 29. The hub of claim 21 wherein the intent sensor comprises user operable controls.



- 31. The hub of claim 21 wherein the intent sensor comprises a threaded
- 5 mechanical connection.

